**PATENT APPLICATION**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of

Docket No: Q86726

Mikio IKENISHI, et al.

Appln. No.: 10/532,863

Group Art Unit: 1794

Confirmation No.: 9001

Examiner: Louis V Falasco

Filed: February 8, 2006

For: GLASS FOR CHEMICAL STRENGTHENING, SUBSTRATE FOR INFORMATION RECORDING MEDIA AND INFORMATION RECORDING MEDIA

**DECLARATION UNDER 37 C.F.R. § 1.132**

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Mikio IKENISHI, hereby declare and state:

THAT I am a citizen of Japan;

THAT I have received the degree of Masters in Materials Science in 1998 from the Graduate School of Materials Science, Japan Advanced Institute of Science and Technology;

THAT I have been employed by HOYA Corporation since 1998, where I hold a position as a R & D Engineer, with responsibility for research in optical glass formation and the formation of glass substrates for information recording media;

THAT I am the inventor of the invention disclosed and claimed in the above referenced application;

THAT I have reviewed the Amendment filed in the above-referenced application on July 6. 2009 and understand on information and belief that the pending claims include claim 1 as the only independent claim and that the claim reads as follows:

*A glass for use in chemical reinforcement for use in a substrate of an information recording medium, having a composition comprising, denoted as mol%:*

| | |
|---|---|
| $SiO_2$ | *47 to 70%* |
| $Al_2O_3$ | *1 to 10%* |

*(where the total of $SiO_2$ and $Al_2O_3$ is 57 to 80 %)*

| | |
|---|---|
| *CaO* | *2 to 25%* |
| *BaO* | *1 to 15%* |
| $Na_2O$ | *1 to 10%* |
| $K_2O$ | *0 to 15%* |

*(where the total of $Na_2O$ and $K_2O$ is 3 to 16 %)*

| | |
|---|---|
| $ZrO_2$ | *1 to 12%* |
| *MgO* | *0 to 10%* |
| *SrO* | *0 to 15%* |

*(where the ratio of the content of CaO to the total of MgO, CaO, SrO, and BaO is greater than or equal to 0.5)*

| | |
|---|---|
| *ZnO* | *0 to 10%* |

*(where the total of MgO, CaO, SrO, BaO, and ZnO is 3 to 30 %)*

| | |
|---|---|
| $TiO_2$ | *0 to 10%* |

*and the total content of the above-stated components is greater than or equal to 95 %, and*

*where the glass does not comprise $Li_2O$.*

THAT I have reviewed the Final Office Action of the Examiner dated October 8, 2009 (hereinafter, "the Final Office Action") and have been advised that pending independent claim 1 is rejected under 35 U.S.C. §103(a) as being unpatentable over the prior art patents to Hashimoto et al (US 6,332,338) and Hayashi et al (US 5,900,296) taken with Maeda et al (US 6,297,182 – newly applied);

THAT I have thoroughly reviewed the patents to Hashimoto (US 6,332,338), Hayashi (US 5,900,296) and Maeda (US 6,297,182) and completely understand the technology disclosed in each patent;

THAT a person skilled in the art of glass substrate manufacturing, as disclosed in Hashimoto, Hayashi, Maeda and the above referenced application, would have at least a university undergraduate degree, and preferably an advanced degree, in inorganic chemistry and at least five years experience in the glass making arts, particularly the art for making glass suitable for hard disk substrates;

THAT such person skilled in the glass substrate art would have a general knowledge about the basic chemistry of glass, a general knowledge of the effect of temperature and the effect of various chemical elements and compositions on the Tg of glass, the durability, hardness and strength of glass, and the various processes that may be used to form glass into desired shapes;

THAT, I have reviewed the analysis and technical reasoning applied by the Examiner in rejecting claim 1 over the patents to Hashimoto, Hayashi and Maeda, namely the Examiner's comment at pages 4 and 5 of the Final Office Action that:

> ***Hashimoto et al*** *does not teach the addition of BaO and* $ZrO_2$ *in the glass. However, the addition of BaO and* $ZrO_2$ *to glass is a convention well known in the glass substrate from* ***Hayashi et al****. BaO is a conventional additive controlling vitrification levels through regulating Tg levels with* $ZrO_2$ *added offset BaO content to maintain substrate durability and hardness levels as Tg is varied.* ***Hayashi et al*** *teaches adding small addition of BaO and* $ZrO_2$*, in instantly claimed content, optimally offsetting the CaO content for a CaO to total SrO, ZnO and* $TiO_2$ *within what has been claimed (****Hayashi et al*** *col. 2 ln 4 to col. 3 ln 4-10 – particularly at col. 2 lns 38-39, 36-47) with applicant's SrO, ZnO and* $TiO_2$ *content at zero to 15, at zero to 10 and at zero to 10 respectively.*
>
> *The claims have been amended to comprise no* $Li_2O$.

*__Hayashi et al__ shows a preference for low $Li_2O$ (__Hayashi et al__ col. 3 ln 22 and 23) and __Maeda et al__ shows an optimal Tg by having no $Li_2O$ (__Maeda et al__ col. 4 lns 33, 34 with all examples of glass comprise no $Li_2O$ noting examples 1, 2, 3 and 6 in table 1 col. 5 and 6 with specific examples of glass comprised of no $Li_2O$, compensated with components for optimal strength and maintaining low Tg for improved manufacture). These specific consistent with __Hashimoto et al__ or __Hayashi et al__ content [CaO: total CaO+MgO+SrO+BaO] less than or = 0.5 and a total CaO+MgO+SrO+BaO+ZnO between 3-30%.*

*It would have been obvious to one of ordinary skill in the art to adopt either of __Hayashi et al__ addition of BaO and $ZrO_2$ with the __Maeda et al__ absence of $Li_2O$ in the __Hashimoto et al__ glass for optimal Tg for improvements in working the glass while maintaining high substrate durability (__Hayashi et al__ col. 5 lns 56-64 and __Maeda et al__ col. 1 lns 6, 7 and improved Tg levels demonstrated in specific examples 1, 2, 3 and 6 of Table 1).*

THAT the foregoing analysis is flawed in that it fails to consider that a person of ordinary skill in the art of glass substrate manufacturing would review and take into consideration the entire disclosure of each prior art reference with respect to (1) the composition of each disclosed glass, (2) the manufacturing process for forming the glass into a substrate, and (3) the relevant parameters of at least viscosity and liquidus temperature in determining whether the teachings of each prior art reference were compatible with the other prior art references with a view to achieving a glass with the features desired for the purposes intended; and

THAT in that light, I have concluded that claim 1 would not be obvious to a person skilled in the glass substrate manufacturing art on the basis of the combined teachings of the prior art patents to Hashimoto, Hayashi and Maeda for the following reasons:

**1. The Combination of Hashimoto and Hayashi**

A person skilled in the substrate glass making art would not combine Hayashi with Hashimoto since (i) the major components of Hayashi's glass differ from major components of Hashimoto's glass, (ii) the substrate manufacturing process in Hayashi (a "float process") is

completely different from the substrate manufacturing processes in Hashimoto (a "press shaping" method and a "re-heat pressing" method, and (iii) the composition of Hayashi's glass that is suitable for the **"float process" method** is a totally different composition from the composition of glass suitable for the press shaping method and re-heat pressing method utilized in Hashimoto.

**i) Hashimoto's glass**

***Composition:*** comprises $TiO_2$ and 35-65 mol% of $SiO_2$

The major characteristic (non-$SiO_2$) component of Hashimoto's glass is $TiO_2$, as taught at col. 5, lines 45 – 55 of the original specification:

> *In the composition of a glass (this glass will be referred to as "glass for a substrate" hereinafter) to be obtained from the above molten glass, TiO2 is a component suitable for obtaining a glass substrate having a high Young's modulus, and the content thereof is required to be at least 0.1 mol % for obtaining a glass substrate having a Young's modulus of at lest 90 GPa. When the content thereof exceeds 30 mol %, however, the devitrification resistance of the glass decreases, so that it is difficult to obtain a glass for a substrate having a liquidus temperature of 1,360° C or lower.*

All of the Examples 1 – 99 in Hashimoto comprise $TiO_2$ (see Tables 1 to 14).

The amount of $SiO_2$ of Hashimoto's glass is 35-65 mol%, as taught at col. 6, L 45 – 53 of the original specification:

> *SiO2 is a component for forming a glass network, and the content thereof is required to be at least 35 mol % for obtaining a glass having a liquidus temperature of 1,360 °C or lower. However, when the content thereof exceeds 65 mol %, it is difficult to obtain a glass substrate having a Young's modulus of at least 90 GPa. SiO2 is a component having an influence on the water resistance such as diffusion of alkali ion, and it is effective when the content thereof is 40 to 60 mol %.*

***Manufacturing process***: comprises only a press shaping method or a re-heat pressing method

Hashimoto teaches two methods of manufacturing a glass substrate. One is a press shaping method or a direct press method **(Process I)** and the other is a re-heat pressing method **(Process II).**

**Process I** – the process is taught at col. 5, L 21 – 39, wherein both viscosity and liquidus temperature are relevant parameters, as follows:

> *The above Process I, one of the processes for the production of a glass substrate for an information recording medium (to be sometimes simply referred to as "glass substrate" hereinafter), is a process in which a molten glass is direct-press-shaped with an upper mold member and a lower mold member of a mold, and as the above molten glass, there is used a glass which contains 0.1 to 30 mol % of $TiO_2$, 1 to 45 mol % of CaO, 5 to 40 mol % of total of MgO and the above CaO, 3 to 30 mol % of total of $Na_2O$ and $Li_2O$, 0 to 15 mol % of $Al_2O_3$ and 35 to 65 mol % of $SiO_2$ and has properties of* ***a liquidus temperature of 1,360 °C or lower*** *and* ***a viscosity of at least 10 poise in a shaping-allowable temperature range****. The mold has an upper mold member and a lower mold member, or it has an upper mold member, a lower mold member and a sleeve. The material for the mold is selected from cast iron, graphite, an Ni-containing alloy and a tungsten alloy. A release agent such as a boron nitride is applied to a shaping surface of the mold.*

**Liquidus temperature**, see col. 4, lines 7-12

> *Further,* ***a press shaping method*** *in which a production cost is relatively low is widely employed for shaping a glass into the form of a disc, and for preventing an adverse influence on a mold in the above method, it is preferred to maintain a liquidus temperature at 1,360 °C or lower.*

**Viscosity**, see col. 7, lines 48-62

> *Further, even if the liquidus temperature of the glass for a substrate is 1,360 °C or lower, but when the viscosity in a temperature range in which the glass for a substrate is shapeable (which temperature range means a temperature range at which the glass for a substrate is shapeable by direct press shaping, and used in this sense hereinafter), i.e., the viscosity in a temperature range including and higher than the liquidus temperature is extremely low, not only it is difficult to control the flow rate of a glass melt (molten glass) when the glass melt is supplied to a shaping step in the course of obtaining a glass substrate, but also the degree of freedom of a shapeable form decreases. The above viscosity of the molten glass used in Process I is at least 10 poise, preferably at least 30 poise. The upper limit thereof is 500 poise or less in view of stability in shape during the shaping.*

**Combination of Liquidus Temperature and Viscosity**, see col. 7, lines 48-62

> *For obtaining a glass substrate by Process I, it is required to prevent the substantial precipitation of a crystal during its production process. That is because, if a glass is devitrified, glass material components are precipitated, and impurities remain in a formed glass and deteriorate the surface smoothness of the glass substrate surface. It is therefore preferred to carry out the steps of melting glass raw materials, shaping*

> *and cooling, at a temperature equivalent to, or higher than, a temperature around the liquidus temperature of the glass when a glass substrate is produced. Since, however, the above liquidus temperature is extremely high, a mold undergoes deformation (around 1,400 °C) when a direct press shaping is carried out, so that the production of the glass substrate is difficult itself and that it does not have practical utility any longer. It is therefore preferred to feed a molten glass to a mold through an outlet of a nozzle at a temperature which is within a temperature range corresponding to a glass viscosity of 10 to 500 poise and which is equivalent to, or higher than, a temperature around the liquidus temperature. Practically, a temperature which is -20 °C below the liquidus temperature may be sufficient so long as no crystallization takes place.*

In a press shaping method of the Hashimoto's process, there is a reference to a relation between the liquidus temperature and the glass viscosity, but there is no strict requirement with respect to a relation between the liquidus temperature and the glass viscosity.

**Process II** - the process is taught at col. 9, line 66 to col. 10, line 28, wherein only viscosity is a critical parameter, as follows:

> *Process II of the present invention comprises providing a preform formed of a glass having the same composition as that of the "glass for a substrate" referred to in the above Process I of the present invention and shaping the preform into a disc form by a re-heat pressing method, to obtain a glass substrate for an information recording medium.*
>
> *The glass or molten glass for use as a material for the preform preferably has the composition which is the same as the composition preferred in the above Process I of the present invention.*
>
> *The method of producing an intended preform is not specially limited, and it may be any one of hot processing and cold processing methods. Further, the form of the preform is not specially limited, either, and it may have any desired form of a sphere, a prism, a plate, and the like. After a preform is formed in a desired form by hot processing or cold processing, the preform may be polished.*
>
> *A preform can be re-heat pressed by providing a mold having a cavity having the form of a desired disc (a mold formed of an upper mold member and a lower mold member or a mold formed of an upper mold member, a lower mold member and a sleeve), either pre-heating the preform so as to allow the preform to have a viscosity of approximately $10^7$ to $10^2$ poise and placing it in the above mold, or placing the preform in the above mold and heating it together with the mold so as to allow the preform to have a viscosity of $10^7$ to $10^2$ poise, and then press-shaping the preform under a shaping pressure of approximately 10 to 300 kgf/cm$^2$ for approximately 0.1 to 600 seconds. The shaping surface of the mold is generally provided with a release film, as is done in re-heat press shaping of a glass for other use.*

In the **re-heat pressing method** of Hashimoto, it is not necessary to consider the liquidus temperature because the preform is not heated to temperature as high as a temperature for melting the glass.

**Float Process** - There is no teaching of a float process in Hashimoto. Moreover, the liquidus temperature of Hashimoto's glass is 1360°C or lower, preferably 1250°C or lower, more preferably 1150°C or lower. The glass viscosity at around the liquidus temperature of Hashimoto's glass is 10 to 500 poise. Glass in such a range of viscosity is not suitable to use in the "float process," as discussed later.

**ii) Hayashi' s glass**

***Composition:*** comprises ***no*** $TiO_2$ and ***more than*** 65 mol% of $SiO_2$ - see Table A below from Hayashi:

Table A

**mol%** Hayashi(US 5,900,296)

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| **$SiO_2$** | **66.73** | **65.99** | **70.73** | **67.29** | **71.52** |
| $Al_2O_3$ | 4.75 | 5.15 | 5.29 | 4.17 | 0.87 |
| $Na_2O$ | 4.69 | 3.41 | 6.53 | 5.72 | 12.91 |
| $K_2O$ | 4.63 | 6.01 | 2.87 | 5.27 | 0.31 |
| MgO | 3.43 | 6.94 | 0.84 | 1.76 | 5.89 |
| CaO | 5.92 | 3.16 | 7.22 | 5.06 | 8.46 |
| SrO | 4.61 | 6.13 | 2.61 | 3.42 | 0 |
| BaO | 3.57 | 2.32 | 3.09 | 5.56 | 0 |
| $ZrO_2$ | 1.63 | 0.89 | 0.82 | 1.73 | 0 |
| $Fe_2O_3$ | 0.04 | 0 | 0 | 0.02 | 0.04 |
| Total | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |

***Manufacturing process***: comprises only the **"float process"** or **"Pilkington process"**

**"Float process"**

The Hayashi substrate is produced by making a glass plate using a "float process" and then cutting the glass plate into disk shapes. Basic information on the "float process" is provided in **Attachment A** (U.S. Patent 2,911,759 to Pilkington et al.) and **Attachment B** (U.S. Patent 5,958,812 for S. Koch et al (Saint-Gobain Vitrage))

According to Attachment A, in the "float process" molten glass is expanded on a molten metal such as tin by pulling the molten metal to obtain a glass sheet. In this case, low viscosity (high temperature) ***inhibits*** pulling and expanding the molten glass. In contrast, high viscosity (low temperature) ***allows*** pulling and expanding but increases the possibility of loss of transparency due to devitrification of the molten glass.

Low Liquidus Temperature - In the manufacture of glass according to the **"float process,"** an improvement of the resistance to loss of transparency (devitrification resistance) and lowering of the liquidus temperature is required.

According to Attachment B at col. 3, lines 52-56, the liquidus temperature must be less than the temperature exhibiting glass viscosity of $10^{3.5}$ poise:

> *In float glass technology, in particular, it is important for the liquidus temperature of the glass to remain equal to or lower than the temperature corresponding to* $\log\eta=3.5$*, which is the case with the glasses according to this invention.*

**iii) Teaching Away From a Combination of Hayashi with Hashimoto**

A person of ordinary skill in the art of glass substrate manufacture would know that a simple application of a part of the composition of **Hayashi's glass** to **Hashimoto's glass** is to be avoided because of the different requirements for liquidus temperature. As detailed above, the two patents teach in opposite directions. **Hashimoto's glass** is one suitable for manufacturing a glass substrate by a press shaping method and a re-heat pressing method, at least in one method liquidus temperature being critical, but **Hashimoto's glass** is not one suitable for manufacturing a glass substrate by **"float process"**. In contrast, **Hayashi' s glass** is designed to be suitable for manufacturing **a glass sheet** by a **"float process"** that is not always or usually suitable for manufacturing in a press shaping method and a re-heat pressing method.

I conclude that the glasses, the components of the glasses and the distinctly different manufacturing processes used in each of Hashimoto and Hayashi would lead a person skilled in

the art of glass substrate manufacturing away from considering the teachings of one as being relevant to the other and, more specifically, to combining the elements and compounds of the glass one reference into the glass of the other reference.

**2. The Combination of Maeda with Hashimoto**

A person skilled in the substrate glass making art would not combine Maeda with Hashimoto since (i) the major components of Maeda's glass differ from major components of Hashimoto's glass and (ii) the composition of Maeda's glass that is suitable for the "float process" method is a totally different process from the composition of glass suitable for the press shaping method and re-heat pressing method utilized in Hashimoto.

**i) Maeda's glass**

***Composition:*** comprises $B_2O_3$, ***more than*** 65 mol% of $SiO_2$, and ***no*** $TiO_2$

The major component of Maeda's glass is $SiO_2$ and comprises more than 65 mol% of $SiO_2$ like Hayashi. Also, Maeda's glass comprises $B_2O_3$ in addition to $SiO_2$ and $Al_2O_3$, as an essential component.

Example 14 in Maeda, which glass does not comprises $B_2O_3$, is only a comparative example and Maeda teaches that the fracture toughness of this glass is lower than those of working examples and the resistance against the progress of fracture is low, whereby the probability of breakage during the production process of during the use, is high (see col. 6, lines 30-33). The glass of Example 14 does not comprise $Li_2O$.

Thus, a person of ordinary skill in the art, reading the teachings of Maeda, would understand that for a glass that does not comprise $B_2O_3$, it would not be desirable to exclude $Li_2O$. In other words, $Li_2O$ is desired, according to the overall teachings of Maeda.

Further, a person of ordinary skill in the art would note that Hashimoto's glass does not comprise $B_2O_3$.

Thus, in view of the foregoing teachings of **Maeda**, an exclusion of $Li_2O$ from the **Hashimoto's glass** that does not comprise $B_2O_3$ is not desired since **Maeda** teaches that exclusion of $Li_2O$ from a glass not comprising $B_2O_3$ results in lower fracture toughness. This means that the resulted glass is unsuitable to a glass substrate for information recording medium.

**Maeda** teaches away from the present invention in a case of combination of **Hashimoto** with **Maeda.**

In addition, the glasses disclosed in **Maeda** do not comprise $TiO_2$ like **Hayashi's glass.** $SiO_2$ content (mol%) of the glass of Example 14 is 66.15 mol% (see table below) which is out of the $SiO_2$ content range of **Hashimoto's glass**, 35 to 65mol%.

**mol%** Maeda (US 6,297,182)

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| $SiO_2$ | 57.02 | 56.9 | 57.05 | 56.87 | 56.99 | 57.01 | 56.98 | 66.07 |
| $Al_2O_3$ | 10.97 | 12.03 | 9.48 | 9.02 | 9.48 | 9.48 | 9.8 | 6.83 |
| $B_2O_3$ | 3.99 | 4.03 | 4.04 | 4 | 4 | 4.5 | 4.21 | 2.37 |
| MgO | 6.58 | 5.99 | 6.48 | 6.57 | 6.58 | 5.96 | 5.95 | 7.07 |
| CaO | 10.95 | 10.47 | 10.95 | 10.03 | 9.45 | 9.03 | 9.5 | 6.77 |
| SrO | 0 | 0 | 0 | 1.02 | 1.47 | 1.99 | 1.48 | 0 |
| BaO | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| $ZrO_2$ | 0 | 0 | 1.48 | 1.99 | 1.51 | 1.52 | 1.51 | 0 |
| $Na_2O$ | 6.99 | 7.05 | 6.01 | 5.02 | 5.24 | 5.27 | 5.05 | 5.92 |
| $K_2O$ | 3.5 | 3.53 | 4.51 | 5.48 | 5.28 | 5.24 | 5.52 | 4.97 |
| $Li_2O$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |

| | 9 | 10 | 11 | 12 | 13 | **14** | 15 |
|---|---|---|---|---|---|---|---|
| $SiO_2$ | 64.06 | 63.96 | 58.83 | 60.78 | 63.68 | **66.16** | 65.31 |
| $Al_2O_3$ | 7.17 | 7 | 8.52 | 5.49 | 5.02 | 8.06 | 8.55 |
| $B_2O_3$ | 4.37 | 4.67 | 4.1 | 4.17 | 1.04 | 0 | 0 |
| MgO | 5.46 | 7.25 | 5.27 | 6.05 | 6.03 | 3.4 | 0 |
| CaO | 6.34 | 2.32 | 9.46 | 9.52 | 6.9 | 6.11 | 0 |
| SrO | 1.5 | 2.51 | 1.79 | 1.97 | 3.49 | 1.32 | 0 |
| BaO | 0 | 0 | 0 | 0 | 0 | 2.69 | 0 |
| $ZrO_2$ | 0 | 0 | 1.51 | 1.98 | 2.88 | 1.11 | 3.54 |
| $Na_2O$ | 5.95 | 7.12 | 5.03 | 2.55 | 6.99 | 4.97 | 10.05 |
| $K_2O$ | 5.15 | 5.17 | 5.49 | 7.49 | 3.97 | 6.18 | 0 |
| $Li_2O$ | 0 | 0 | 0 | 0 | 0 | **0** | 12.55 |
| Total | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |

***Manufacturing process***: comprises only the **"float process"** or **"Pilkington process"**

As stated in Maeda at col. 2, lines 39 and 40, the process used is a float process.

**ii) Combination of Maeda with Hashimoto**

First, a person skilled in the glass substrate manufacturing art would understand that the use of low $Li_2O$ and no $Li_2O$ are very different concepts with significantly different results. Second, since the basic composition of **Maeda's glass** is different from the basic composition of **Hashimoto's glass** in (1) $TiO_2$ content (the presence or absence) and (2) $SiO_2$ content (mol%), it would not be obvious for those skilled in the art to simply adopt a part of the composition of **Maeda's glass** to **Hashimoto's glass** without considering the impact on the glass, the manufacturing process and the parameters involved, and the need for added modification due to the complex interplay between these variables..

**3. <u>The Motivation To Combine Three References</u>**

In supporting the obviousness of the selected extraction of teachings from Hayashi and Maeda to modify Hashimoto, the Examiner has stated that:

> *It would have been obvious to one of ordinary skill in the art to adopt either of **Hayashi et al** addition of BaO and $ZrO_2$ with the **Maeda et al** absence of $Li_2O$ in the **Hashimoto et al** glass for optimal Tg for improvements in working the glass while maintaining high substrate durability*

I strongly disagree with that logic since one skilled in the art would also consider the other components and compounds in the glass of Hashimoto, the different processes utilized to make a glass disk and the different parameters of those processes, particularly the temperatures and viscosities involved. One skilled in the art would not be led to make the adjustments and modifications made by the Examiner and, in fact, would be led away from such combination.

IN SUM, one skilled in the art fully considering the teachings of each of Hashimoto, Hayashi and Maeda would find significant incompatibilities that would preclude consideration of the combination of selected teachings from each reference. and would find the Examiner's rationale for adding selected teachings to be overwhelmed by the reasons not to combine.

I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are

punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: June 30, 2010

Mikio Ikenishi

Mikio IKENISHI